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U S NAVY RESPONSE TO SOUTH CAROLINA DEPARTMENT OF HEALTH AND  
ENVIRONMENTAL CONTROL COMMENTS TO CSI REPORT AREA OF CONCERN 720  
(AOC 720) ZONE G WITH TRANSMITTAL CNC CHARLESTON SC  
1/23/2003  
CH2M HILL

AOC 720 Zone G  
RtC CSZ Report (RO)

# CH2MHILL TRANSMITTAL

**To:** Jerry Stamps  
South Carolina Department of Health  
and Environmental Control  
Bureau of Land and Waste  
Management  
2600 Bull Street  
Columbia, SC 29201

**From:** Louise Palmer/CH2M-Jones

**Date:** January 23, 2003

**Re:** CH2M-Jones' Responses to Comments by SCDHEC regarding the *Confirmatory Sampling Investigation Report, Area of Concern 720, Zone G, Charleston Naval Complex* (Revision 0)

Quantity	Description
4	CH2M-Jones' Responses to Comments by SCDHEC regarding the <i>Confirmatory Sampling Investigation Report, Area of Concern 720, Zone G, Charleston Naval Complex</i> (Revision 0) – Originally Submitted on September 26, 2002

If material received is not as listed, please notify us at once.

Remarks:

Copy To:

Dann Spariosu/USEPA, w/att

Gary Foster/CH2M-Jones, w/att

**SCDHEC Engineering Comments Prepared by Jerry Stamps:**

**1. General Comment:**

The Department maintains that a professional engineer certified in the state of South Carolina must certify that the integrity of the OWSs and the ancillary piping remains in tact. This certification and supporting analytical data is especially important for units that remain in place which have potential future use by subsequent landowners. Please note that this requirement is being applied consistently to all facilities regulated under RCRA Subtitle C administered by the Corrective Action Engineering Section.

**CH2M-Jones Response:**

*The OWS unit in the CSI Report for OWS AOC 720 is permanently out of service. Therefore, it is not clear what the benefit of an integrity assessment would be. CH2M-Jones understands the Department's concerns about the potential for releases from OWSs in the event that they continue to be operated in the future. CH2M-Jones and the Navy believe it is the responsibility of any future owner or operator who chooses to operate these units to conduct the required integrity assessment. We suggest that we work together with SCDHEC to find a manner to address this issue that is acceptable to all parties.*

**2. General Comment:**

The figures seem to indicate that the soil samples were collected 10 feet or more from the units under investigation. However, the Department understands that the icon used to represent the OWS may not necessarily represent the actual size of the unit. Consequently, the Navy must verify that the samples locations are indeed adjacent to the respective units. If so, the text should be revised to clarify this fact.

Furthermore, the Navy must verify that the subsurface soil samples were collected at sufficient depth corresponding to the depth of the OWS. If so, the text should be revised to clarify this fact. A groundwater sample immediately downgradient of this unit will be sufficient to determine if a release has occurred at the bottom of the unit.

**CH2M-Jones Response:**

*Soil samples were collected approximately 10 ft from the estimated center of the OWS, to make sure that it surrounded the unit because its exact location was unknown. The text states that the subsurface soil samples were collected at 3 to 5 ft below grade; this depth was intended to intersect potential releases from the OWS base, inlet, and outlet piping. The location and depth of the soil samples will be further clarified in the text. As stated in the text, a groundwater sample was attempted on the east side of the unit, but no groundwater was available. We will work with SCDHEC to evaluate appropriate locations for additional samples, if needed.*

**3. Section 2.1.1, Metals in Soil Samples**

Sample G720SB003 had an elevated lead concentration of 890 ppm in subsurface soil; however, a duplicate sample was collected from the same location which resulted in a

lead concentration of 13 ppm. Though the Department acknowledges that a metal fragment may have contributed to the elevated lead concentration, unfortunately there is no evidence supporting this conclusion. Therefore, the Department recommends collecting additional sample(s) in the vicinity of SB003 for lead analysis in order to “tip the scale” one way or the other to verify that this elevated lead concentration is anomalous. The need for this verification is further supported by the lack of metals analysis of groundwater samples.

**CH2M-Jones Response:**

*We will coordinate with SCDHEC on any additional samples at this site, if needed. The proposed additional soil samples that need to be collected have been discussed by Mansour Malik of SCDHEC and Louise Palmer of CH2M-Jones, and a sampling plan is being submitted under separate cover.*

**SCDHEC Hydrogeology Comments Prepared by Paul Bergstrand:**

**1. Page 1-1, Introduction, Lines 18 – 19 and 24 – 25**

This section states *“There is no reason to believe that hazardous materials have been released from this OWS unit.”* and *“No Further Action is proposed for the OWS AOC, as the results of the recent CSI conclude that there is no contamination present at the site.”* The Department has not been able to reach this definitive conclusion based on the information provided in this report. The Department’s correspondence of 22 February 2001, which informed the Navy of the Department’s Discovery of a New Site (Potential SWMU), noted stains on the wash rack floor and a shed with a hazard notification plaque. Please provide documentation to support the Navy’s statement or revise this section.

**CH2M-Jones Response:**

*Davis & Floyd sanitary sewer records show that the OWS likely serviced the wash pad only. The shed is not associated with the OWS. The closest aboveground structure to the wash rack is approximately 100 ft away, and is not known to be connected by above- or below-grade piping.*

**2. Page 1-1, Introduction, Lines 22 – 23.**

This section states that *“CSI activities were conducted to evaluate the nature and extent of potential contamination from the OWS historical operation.”* This statement does not coincide with the goals as printed in the SAP. The stated goal of the SAP is *“to conduct Confirmatory Sampling Investigations (CSIs) to evaluate the presence or absence of contamination from potential releases from the Oil/Water Separators.”* Please revise this section.

**CH2M-Jones Response:**

*The objective of a SAP is different than the objective of a CSI report. A SAP is a work plan that describes only proposed sampling and analysis activities. A SAP has specific goals that are different than the goals of a CSI report. A CSI report addresses a broader set of issues related to a site than a SAP. As such, it is expected that the stated goal of a SAP would necessarily be different from the stated goal of a CSI report. Consequently, it does not make sense to change the stated goal of a CSI report to a verbatim restatement of the goal of an SAP. Both of the sentences referred to above adequately reflect the intent of their respective reports. There is no need to revise the CSI Report based on this comment.*

**3. Page 1-2, AOC 720 Background and Setting, Lines 22 – 23.**

This section states *“The OWS is not evident from the surface and is not accessible (there is no manhole).”* It would be highly unusual for an OWS not to have some form of access. The Navy should describe in detail how it is able to determine the location of the OWS if there is no surface evidence and if there is not an access port or manhole.

**CH2M-Jones Response:**

*The OWS location was estimated in the field by PVC piping extending above the surface; no access port or manhole was visible. At the December 30, 2002 site visit, CH2M-Jones, SCDHEC, and the Navy discovered that the PVC piping had been removed by contractors for the State of South Carolina Highway Department of Transportation. The OWS site is now marked by gravel and crushed stone/slag on the ground surface.*

**4. Page 1-2, AOC 720 Background and Setting, Line 24.**

This section states *"Information regarding the configuration of the OWS is not available."* If the Navy decides to close the OWS this information would be obtainable in the field. Understanding the configuration of the OWS is crucial to evaluating sample location and the relevance of analytical data. The Navy should acquire and provide the OWS details to include dimensions, piping, distance below land surface, and the measured depth of the bottom of the unit.

**CH2M-Jones Response:**

*If the Navy chooses to close the unit, it will obtain information about its configuration during closure. The closure procedure would likely include sampling its contents, if any contents are present.*

**5. Page 1-2, AOC 720 Background and Setting, Lines 24 – 26.**

This section states *"PVC piping extending above grade south of the equipment pad may have been used as part of the OWS operation."* It is common for an OWS to have an access point, such as a pipe, to remove oils and sludges. The Navy should determine the layout and function of the PVC piping. The Navy is advised to collect a sample of the contents (oils, water & sludge) of the OWS.

**CH2M-Jones Response:**

*This comment was previously addressed in responses to Comment Nos. 3 and 4.*

**6. Page 1-2, AOC 720 Background and Setting, Lines 26 – 27.**

This section states *"A report of the wastewater lines prepared by Davis and Floyd (1998) indicates that the OWS drained northward to the sanitary sewer at Hobson Avenue."* A copy of the relevant information, as requested by the Department in the SAP approval, was not included in this Report. Understanding the configuration of the OWS is critical to evaluating sample location and the relevance of analytical data. The Navy should include a copy of the relevant information regarding wastewater lines from the Davis and Floyd report.

**CH2M-Jones Response:**

*The figure by Davis & Floyd relevant to this site will be appended to the report. This figure shows a sanitary sewer line leading from the wash pad at AOC 720 to the main line along Hobson Avenue.*

**7. Page 2-1, Environmental Sampling at AOC 720, Lines 3 – 5.**

This section states *“These samples were collected as described in the Sampling and Analysis Plan; AOC 713, Zone F; AOC 720 Zone F (sic) Oil/Water Separators; Charleston Naval Complex; (CH2M-Jones, March 2002).”* The sample locations, as described in this CSI Report, are not in the same locations that were proposed and approved by the Department in the SAP. It is not clear why the sample locations were modified or who made the decision to relocate them.

The decision to relocate soil and groundwater sampling points constitutes a change to the SAP that should have been discussed with the Department during field activities. As originally proposed, the east and west samples would have been downgradient of the OWS and the southern sample would have been upgradient of and adjacent to the OWS. The sample locations as reported in the CSI Report were all moved upgradient such that the east and west samples were side-gradient of the OWS and the south sample was nearly 10 feet upgradient of the unit. The result is there are no soil or groundwater samples adjacent to or downgradient of the OWS. The Navy must collect soil and groundwater samples adjacent to and downgradient of the OWS. Please submit the monitoring well request to my attention (see comment 9).

**CH2M-Jones Response:**

*The samples were shifted to surround the PVC piping slightly to the west of the circular symbol on Figure 2-1, in anticipation that the OWS unit may extend toward the piping instead of being located directly south of the equipment pad. At the time of sampling, the adjacent equipment pad had been demolished and the wash pad was covered with soil and rubble. The two sample locations shown in the SAP, located north of the assumed OWS location, were physically inaccessible at the time of sampling. We will coordinate additional sample locations, if any are necessary, with SCDHEC.*

**8. Page 2-2, VOCs in Soil Samples, Lines 17 – 22.**

This section states *“As shown in Table 2-1, trace amounts of cis-1,2-dichloroethene (cis-1,2-DCE) and carbon disulfide were detected in one of the three soil samples collected in the AOC 720 area.”* This is not correct. Table 2-1 indicates that cis-1,2-DCE was detected in one of three soil samples. Carbon disulfide was detected in two of the three soil samples. Please revise this section.

**CH2M-Jones Response:**

*The statement in the report is correct. Inspection of Table 2-1 shows that trace amounts of cis-1,2-DCE and carbon disulfide were detected in G720SB003. No other samples had these two chemicals detected. The statements that follow in Section 2.1.4 clearly indicate that other VOCs were also detected. No revisions to this statement appear to be needed.*

9. **Page 2-2, VOCs in Soil Samples, Lines 17 – 22.**

Soil boring G720SB003 was relocated 7 to 10 feet upgradient of the OWS without Department knowledge or approval. Evaluation of these VOC detections is further complicated by the lack of OWS piping diagrams, OWS dimensions, and depth of the bottom of the unit. The Navy has not demonstrated the release is localized or confined. Should the Navy assume that the contamination released was from the OWS, the lack of a downgradient monitoring well would preclude detection. The detections of VOCs in G720SB003 have confirmed the presence of contamination from potential releases from the OWS. Because the CS Report has documented a release, the Navy must submit a RFI sampling workplan with at least 4 soil sample locations around the OWS and at least three permanent monitoring wells in upgradient and downgradient locations. Analysis must be for VOCs, SVOCs, and metals. Deep monitoring wells are not required at this time. The Department is willing to assist the Navy in scoping the workplan.

**CH2M-Jones Response:**

*Three subsurface soil samples have been collected at AOC 720, and analyzed for VOCs, SVOCs, metals, PCBs, and pesticides. Trace amounts of VOCs have been identified at levels an order of magnitude less than screening criteria. The origin of the VOCs is unknown. No VOCs have been detected in groundwater samples at the site. The data indicate that an RFI is not warranted at this site.*

10. **Page 2-2, VOCs in Soil Samples, Lines 17 – 22.**

This section stated that “trace amounts of the field/laboratory contaminants acetone and methyl ethyl ketone were detected in all three soil samples.” This statement implies that the contaminants detected were the result of field contamination during sample collection or laboratory contamination during sample analysis. The Navy’s position is not supported by the Data Validation Summary located in Appendix B. The Data Validation Summary states that the trip blank reported 4.2 ug/l methylene chloride. Neither acetone or methyl ethyl ketone were detected in the sample blanks. Because both acetone and methyl ethyl ketone could have been disposed into the OWS, the Navy must consider them as actual detections in the soil samples. Please revise this section.

**CH2M-Jones Response:**

*Acetone and methyl ethyl ketone are considered as actual detections. Because the detected concentrations are below the COPC screening criteria agreed to by the BCT, they are not considered COPCs or COCs at this site. The section will be revised to more clearly indicate that the reference to acetone and methyl ethyl ketone being field and laboratory contaminants relates to the EPA guidance documents that include these chemicals as common laboratory contaminants.*

**11. Page 2-2, Groundwater Sampling and Analysis, Lines 24 - 28.**

This section states "Data from the two direct-push technology (DPT) locations were used to evaluate groundwater quality at AOC 720." The Navy is therefore relying on upgradient to sidegradient DPT monitoring wells to determine groundwater quality and has discounted the necessity of downgradient monitoring well locations. This is not a standard sampling approach and is not acceptable. Downgradient monitoring wells are required to assess groundwater quality at AOC 720. See comments 7 and 9.

**CH2M-Jones Response:**

*We will coordinate with SCDHEC any additional samples needed to characterize this site.*

**12. Page 2-3, Groundwater Sampling and Analysis, Lines 3- 4.**

This section states "Logs of the DPT groundwater samples are presented in Appendix D." The logs in Appendix D are for DPT points G720GP001 and G720GP002. The monitoring well record (log) for the third DPT, which would not produce enough water to sample, was not included in the Appendix. This third well record must be submitted.

The Logs for DPT points G720GP001 and G720GP002 did not include the following information as required in the June 2, 1985 South Carolina Well Standards and Regulations R.61-71.11(E)(2):

- Driller (name)
- Geologist's log
- Depth to the Water Table and time measured
- Surveyed elevation of measuring point.

This information must be submitted.

Condition 2 of the monitoring well approval #HW-02-038, dated 16 April 2002, stated "The monitoring well record (R.61-71.11.E.2) shall be submitted to the Department within 30 days after installation of the last point." The well logs in Appendix D indicate the wells were installed on July 18, 2002. According to the monitoring well approval the well records were to be submitted on or before August 18, 2002. The Report was received on September 27, 2002. This constitutes a violation of the South Carolina Well Standards and Regulations R.61-71.11(E)(2) by the Navy.

**CH2M-Jones Response:**

*a) A record of the third DPT effort is submitted with this response.*

*b) The DPT method used to collect groundwater samples at this site did not involve measuring the water table depth or gathering soil samples or cuttings. The screen depth was measured from the ground surface; however, the surface elevation was not surveyed. Therefore, no geologist's log of lithography or water table depths are reported.*

*c) We understand that the completed logs were submitted to SCDHEC at the August, 2002 BCT meeting, before the CSI report was submitted.*

**13. Page 2-3, Groundwater Sampling and Analysis, Lines 5- 12.**

This section states *"The only compound detected in groundwater was acenaphthene at sample location G720GP001."* Because estimated contamination concentration is less than the adjusted Risk Based Concentration (RBC) this section concludes by stating *"the data indicate that there are no COPCs in groundwater at AOC 720."* G720GP001 was a temporary monitoring well that is sidegradient of the OWS. Furthermore, the detection of acenaphthene in G720GP001 has confirmed a potential release from the OWS. As stated above, the Navy must submit a RFI sampling workplan to address the contamination. The workplan should be submitted within 90 days.

**CH2M-Jones Response:**

*The detected concentration 0.49 µg/L is very close to the instrument detection limit and much lower than the typical reporting limit (non-detect) of 10 µg/L. This detection does not indicate a release from the OWS, and is much lower than the range of detected concentrations in background grid wells at CNC (2 to 43 µg/L). Additional samples at this site will be coordinated with SCDHEC.*

**14. Page 2-4, Investigation Summary, Lines 13 - 23.**

The items contained within this summary have been addressed in greater detail in the previous comments. A summary of those items are as follows:

- Basic information on the OWS was not included.
- The sampling locations were moved from the approved locations.
- Two monitoring well records (logs) were not complete and one was not submitted.
- The report documents a release to the environment, requiring an RFI workplan.

**CH2M-Jones Response:**

*A summary of the previous responses to the bulleted items follows:*

- *No information regarding the OWS is available. The Davis & Floyd sewer map will be appended to the report.*
- *Sampling locations were adjusted to accommodate site conditions and to surround the most likely location of the OWS, near the PVC piping.*

- *DPT logs were completed with all available information. The record for a sample that never encountered water will be submitted.*
- *The data do not indicate COCs requiring further investigation. However, additional samples, if needed, will be coordinated with SCDHEC.*

**15. Page 3-1, Conclusions and Recommendations, Lines 23 - 24.**

This section states "AOC 720 is recommended for NFA status." As stated in previous comments, additional sampling is necessary. This document cannot be approved as submitted and the Department cannot concur with a NFA at this time.

**CH2M-Jones Response:**

*Resolution of comments is currently in progress.*

**Attachment**



PROJECT NUMBER 158814	DPT NUMBER G720GP001	page __ 1 __ of __ 1 __
<b>DPT GROUNDWATER SAMPLE LOG</b>		

PROJECT : Charleston Naval Complex, Charleston, SC	LOCATION : Charleston, SC	NORTHING: 371465 4
ELEVATION : NA	DRILLING CONTRACTOR : Prosonic Corporation - R. Mooney	License # 1435 EASTING: 2322499 0
DRILLING METHOD AND EQUIPMENT USED : Geoprobe		Direct-Push Sampling, 4 ft screen
START : 06/18/2002	END: 06/18/2002	LOGGER : D. Gates/NVR

DEPTH BELOW SURFACE (FT)	SAMPLING DEPTH	COMMENTS
	SCREEN INTERVAL	ABANDONMENT METHOD TESTS, INSTRUMENTATION SOIL DESCRIPTION, IF VISIBLE
5		
	Top of Sampling Interval	
10		
	Bottom of Sampling Interval	
15		After sampling the boring was pressure grouted from bottom to top with Type 1 Portland Cement
20		
25		
30		



PROJECT NUMBER 158814	DPT NUMBER G720GP002	page ___ 1 ___ of ___ 1 ___
DPT GROUNDWATER SAMPLE LOG		

PROJECT : Charleston Naval Complex, Charleston, SC		LOCATION : Charleston, SC	NORTHING: 371453 0
ELEVATION : NA		DRILLING CONTRACTOR : Prosonic Corporation - R. Mooney	License # 1435 EASTING: 2322502 5
DRILLING METHOD AND EQUIPMENT USED : Geoprobe		Direct-Push Sampling, 4 ft screen	
START : 06/18/2002		END: 06/18/2002	LOGGER : D. Gates/NVR
DEPTH BELOW SURFACE (FT)	SAMPLING DEPTH	COMMENTS	
	SCREEN INTERVAL	ABANDONMENT METHOD TESTS, INSTRUMENTATION SOIL DESCRIPTION, IF VISIBLE	
5			
	Top of Sampling Interval		
10			
	Bottom of Sampling Interval		
15		After sampling the boring was pressure grouted from bottom to top with Type 1 Portland Cement	
20			
25			
30			



PROJECT NUMBER 158814	DPT NUMBER G720GP003	page __1__ of __1__
<b>DPT GROUNDWATER SAMPLE LOG</b>		

PROJECT : Charleston Naval Complex, Charleston, SC		LOCATION : Charleston, SC	NORTHING: 371453 0
ELEVATION : NA	DRILLING CONTRACTOR : Prosonic Corporation - R. Mooney	License # 1435	EASTING: 2322502 5
DRILLING METHOD AND EQUIPMENT USED : Geoprobe		Direct-Push Sampling, 4 ft screen	
START : 06/18/2002	END: 06/18/2002	LOGGER : D Gates/NVR	
DEPTH BELOW SURFACE (FT)	SAMPLING DEPTH	COMMENTS	
	SCREEN INTERVAL	ABANDONMENT METHOD TESTS, INSTRUMENTATION SOIL DESCRIPTION, IF VISIBLE	
5			
	Top of Sampling Interval		
10	First Sample Interval Formation too tight for to collect groundwater, Dry		
	Bottom of Sampling Interval		
	Top of Sampling Interval	After sampling the bonng was pressure grouted from bottom to top with Type 1 Portland Cement	
15	Second Sample Interval Formation too tight for to collect groundwater, Dry		
	Bottom of Sampling Interval		
	End of Bonng		
20			
25			
30			